UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,104	01/27/2004	Woonza M. Rhee	2500-2287.05	2188

23980 7590 04/11/2007

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C
1400 PAGE MILL ROAD
PALO ALTO, CA 94304-1124

EXAMINER	
FUBARA, BLESSING M	
ART UNIT	PAPER NUMBER
1618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,104	RHEE ET AL.	
	Examiner	Art Unit	
	Blessing M. Fubara	1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/14/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges receipt of IDS filed 3/14/07, request for extension of time, remarks and request for reconsideration filed 1/29/07. Claims 1-68 are pending. No claim is amended.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-68 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is scope of enablement.

For rejections under 35 U.S.C. 112, first paragraph, the following factors must be considered (In re Wands, 8 USPQ2d 1400, 1404 (CAFC, 1988)):

1) Nature of invention.

2) State of prior art.

3) Quantity of experimentation needed to make or use the invention based on the content of the disclosure

4) Level of predictability in the art.

5) Amount of direction and guidance provided by the inventor.

6) Existence of working examples.

7) Breadth of claims.

8) Level of ordinary skill in the art.

See below:

1) Nature of the invention.

The nature of the invention is methods of augumenting human skin fibroblast within the mammalian body, comprising a) providing a first crosslinkable component having m nucleophilic groups, wherein m > 2;

(b) providing a second crosslinkable component having n electrophilic groups capable of reaction

with the m nucleophilic groups to form covalent bonds, wherein n > 2 and m + n > 5;

(c) applying the first and second crosslinkable components to the tissue; and

(d) allowing the first and second crosslinkable components to crosslink in situ,

wherein the first and second crosslinkable components are biocompatible, synthetic, and nonimmunogenic. As stated, however, claim 1 recites that any or a wide representation of soft and hard tissue is capable of being treated by the above method.

2) State of the prior art and the predictability or lack thereof in the art.

Discovering a candidate drug for such a broad use involves repeating the same test for several screening of a hundreds to several million times. This requires a great deal of reproducibility from the test. In order to obtain the state of the prior art is that it involves screening *in vitro* and *in vivo* to determine which compounds or composition or formulation exhibited the desired pharmacological activities (i.e. what compounds can treat which specific

disease on the soft or hard tissue). The existence of these obstacles establishes that the contemporary knowledge in the art would prevent one of ordinary skill in the art from accepting any therapeutic regimen on its face. The instant claimed invention is highly unpredictable as discussed below:

It is noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. *In re Fisher,* 427 F.2d 833, 166 USPQ 18 (CCPA 1970) indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statue. Further, their mode of action is often unknown or very unpredictable and administration of the drugs can be accompanied by undesirable side effects.

Thus, in the absence of a showing of correlation between augumenting varying types of both soft and hard tissue claimed as capable of being treated by the method of the instant claims, one of ordinary skill in the art is unable to fully predict possible results from the administration of the compounds due to the unpredictability of the role of the disease.

3) Quantity of experimentation needed to make or use the invention based on the content of the disclosure.

The quantity of experimentation needed is undue experimentation as mentioned above. One of ordinary skill in the art would first need to determine the type of soft and hard tissue to be treated.

7) Breadth of claims.

Claims 1-68 are extremely broad due to the vast number of possible augmentation of soft and hard tissue encompassed by the instant invention.

Therefore, in view of the some of the Wands factors, and *In re Fisher* (CCPA 1970) discussed above, to practice the claimed invention herein, a person of ordinary skill in the art would have to engage in undue experimentation to test which diseases can be treated by the compounds encompassed in instant claims, with no assurance of success.

3. The above list is by no means complete, but demonstrates the extraordinary breadth of causes, mechanisms, and treatment (or lack thereof) for soft and hard tissue. It establishes that it is not reasonable for one of skill in the art to perfom the necessary augumentation within the mammalin body without undue experimentation

To satisfy the written description requirement, applicant must convey with reasonable clarity to one skilled in the art, as of the filing date that application was in possession of the claimed invention. There is no description in the specification for each m and n > 5

The greater than 2 or greater than 3 for m and n is open ended. The specification supports m + n to be 5 and support is not found for greater that 2 or 3 that is open ended. Thus, for example, claims employing m at a value of say 5 and greater is neither described nor exemplified. The specification does not inform the public of the limits of the monopoly asserted. Similarly, claims employing n at a value of say 5 and greater is neither described nor exemplified. The expression provided in the specification paragraph [0034] represents only an invitation to experiment regarding the possible m and n for the cross-linkable components claimed in the instant application.

Response to Arguments

4. Applicant's arguments filed 1/29/07 have been fully considered but they are not persuasive.

Applicant argues that a) the rejection in the office action of 9/27/06 is one of enablement and that the purpose of enablement is to assure that the inventors provide sufficient

information about the claimed invention that a person of skill in the field of the invention can make and use the invention without undue experimentation, relying on the specification and the knowledge in the art; and arrives after going through the Wands analysis at the argument that b) claims 1-68 are fully enabled because the claims limit the first cross-linkable groups to those having m nucleophilic groups with m ≥ 2 and the second cross-linkable component to those having n electrophilic groups with n m ≥ 2 and that the specification discusses detailed discussions and examples of the claimed cross-linkable components.

Response:

Regarding A, it is noted that the rejection is one a scope of enablement in the sense that applicant claims all and every cross-linkable components that applicant deems as a first cross-linkable component and expect the artisan to go on a fishing voyage to identify any and all the compounds, known or yet to be discovered, that have m nucleophilic groups, with the m ≥ 2, that is, a compound having at least 2 nucleophilic groups, and to determine those that would work in applicant's invention. The same expectation is placed on the artisan regarding the second cross-linkable components that have at least 2 electrophilic groups. While it is through that the artisan is guided by the specification, it is expected that the specification at least name compounds that would fall within the broad genus of first and second cross-linkable components. In the instant case, succinimidyl glutarate, succinimidyl butyrate, succinimidyl butylate, succinimidyl acetate, succinimidyl succinamide, succinimidyl carbonate (Figures 1-14) as the components with electrophilic groups and laminated polyethylene glycol as the component with the nucleophilic group, with figure 3 showing diamante and thiamine Pegs. These are not the

only compounds that have at least two electrophilic or at least two nucleophilic groups. Hence, the rejection that applicant is not enabled for all the compounds, known or yet to be discovered that have at least two electrophilic or nucleophilic groups. Furthermore, no specific components are named in the claims except that the components are defined according to the number of nucleophilic and electrophilic groups, again sending the artisan to experiment with the many compounds that are out there that have at least two electrophilic groups and nucleophilic groups. Therefore, regarding b), it is noted that the full scope of the claimed compounds having m nucleophilic groups and n electrophilic groups are not enabled. The explanation for holding that the scope of the claimed first and second cross-linkable components is not enabled is described in the rejection above.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blessing M. Fubara whose telephone number is (571) 272-0594. The examiner can normally be reached on 7 a.m. to 5:30 p.m. (Monday to Thursday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Hartley can be reached on (571) 272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Blessing Fubara (BF)
Patent Examiner
Tech. Center 1600

MICHAEL G. HARTLEY
SUPERVISORY PATENT EXAMINER